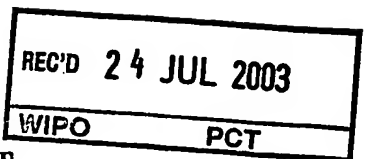


## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 020602.03PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US02/26911	International filing date (day/month/year) 22 AUGUST 2002	Priority date (day/month/year) NONE
International Patent Classification (IPC) or national classification and IPC IPC(7): B41J 2/175 and US Cl.: 347/85, 86, 87, 68		
Applicant MVM PRODUCTS, LLC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 3 sheets.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  09 JANUARY 2003	Date of completion of this report  19 MARCH 2003
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  LAMSON NGUYEN
Facsimile No. (703) 305-3230	Telephone No. (703) 306-4547 

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US02/26911

**I. Basis of the report****1. With regard to the elements of the international application:\***☐ the international application as originally filed☒ the description:

pages 1-9 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the claims:

pages NONE , as originally filed  
pages NONE , as amended (together with any statement) under Article 19  
pages 10-11 , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-3 , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

pages NONE , as originally filed  
pages NONE , filed with the demand  
pages NONE , filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.**4. ☒ The amendments have resulted in the cancellation of:**☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE**5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US02/26911

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. statement**

Novelty (N)	Claims <u>1-18</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-18</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-18</u>	YES
	Claims <u>NONE</u>	NO

**2. citations and explanations (Rule 70.7)**

Claims 1-18 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest an adjustable vertical member for sizing the chassis assembly to the inkjet printer; and converting a thermal printhead signal to a piezo-electrical printhead signal.

\_\_\_\_\_ NEW CITATIONS \_\_\_\_\_

NONE

## CLAIMS

What is claimed is:

1. A cartridge chassis assembly for an inkjet printer, comprising:  
an adjustable vertical member for sizing the chassis assembly to the inkjet printer;  
a signal converter that senses a first printhead signal and converts the first printhead signal into a second printhead signal; and  
a piezo-electric printhead that ejects ink at least partly as a function of the second printhead signal.
2. The cartridge chassis assembly of claim 1, further comprising an ink tank receiving area sized and dimensioned to house an ink tank that cooperates with the piezo-electric printhead.
3. The cartridge chassis assembly of claim 1, wherein the adjustable vertical member has a contact ridge that is readily removable such that the chassis assembly adjusts to fit a chassis receiving area.
4. The cartridge chassis assembly of claim 1, wherein the piezo-electric printhead houses the signal converter.
5. The cartridge chassis assembly of claim 1, wherein signal drivers are resident in the printer's electronics.
6. The cartridge chassis assembly of claim 5, wherein the first printhead signal is an analog signal.
7. The cartridge chassis assembly of claim 1, wherein the signal converter is configured to sense a printer model and driver type.
8. A method of using a piezo-electric driven printhead in a printer having a thermal printhead configuration, comprising:  
coupling the piezo-electric driven printhead to the printer; and  
converting a thermal printhead signal to a piezo-electric printhead signal.
9. The method of claim 8, further comprising a step of polling an associated computer for a printer driver.

10. The method of claim 9, further comprising a step of setting a driver type in an internal register.
11. The method of claim 10, further comprising selecting conversion parameters based at least in part on the printer driver.
12. The method of claim 11, wherein the step of converting further comprises sensing and adjusting to a carriage speed.
13. The method of claim 12, wherein the step of converting further comprises calculating a drop velocity.
14. The method of claim 13, wherein the step of converting further comprises calculating a drop firing pulse repetition rate.
15. The method of claim 14, wherein the step of converting further comprises determining which piezo-electric printhead nozzles to fire to construct a single dot.
16. The method of claim 15, further comprising a step of estimating an ink level by counting dots of a vertical dot pattern.
17. A signal converter configured to convert thermal printhead signals into piezo-electric printhead signals.
18. (Added) A printer comprising the cartridge chassis assembly of claim 1.